

## REMARKS/ARGUMENTS

In the Final Office Action of July 2, 2009, claims 1-20 are rejected. In response, Applicants propose amending claims 1, 7, 9-13 and 16. Applicants respectfully request that the amendments be entered to put the claims in condition for allowance or to put the claims in better condition for appeal. Applicants hereby request reconsideration of the application in view of the proposed amendments and the below-provided remarks.

### Claim Rejections under 35 U.S.C. 103

Claims 1 and 10-17 are rejected under 35 U.S.C. 103(a) allegedly being anticipated by Kim (WO 00/77961) in view of Vanderperren et al. (U.S. Pat. No. 7,286,617, hereinafter “Vanderperren”). Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Kim in view of Vanderperren and further in view of Mizoghuchi et al. (EP 1,071,251, hereinafter “Mizoghuci”). Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Kim in view of Vanderperren and further in view of Mizoghuci and further in view of Ward (U.S. Pat. No. 6,754,170). Claims 6, 9 and 20 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Kim in view of Vanderperren and further in view of Ward. Claims 7, 8, 18 and 19 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Kim in view of Vanderperren and further in view of Ward and in further view of Mizoghuci. However, Applicants respectfully submit that the pending claims are patentable over the cited references for the reasons provided below.

### Independent Claim 1

Applicants propose amending claim 1 to recite in part:

“a synchronisation stage (20) for synchronising the processing stage (10) and comprising a first part (23) for performing a coarse time synchronisation and a second part (24) for performing a fine time synchronisation, wherein the first part comprises an autocorrelating unit for autocorrelating samples of a group of preamble symbols (t1,t2,t3), wherein the second part comprises a crosscorrelating unit for crosscorrelating samples of a further group of preamble symbols (t10,G1) with predefined samples, and wherein the result of the autocorrelating the samples of the group of preamble symbols by the autocorrelating unit is not used by the crosscorrelating unit for the crosscorrelating the samples of the further group of preamble symbols with the predefined samples.” (emphasis added)

Support for the proposed amendments to claim 1 can be found in Applicants' specification at, for example, Fig. 3, original claim 1, page 8, lines 12-33 and page 9, lines 13-31. Specifically, as shown in Fig. 3 of Applicants' specification, the autocorrelation result of the autocorrelating unit (31) is not used by the crosscorrelating unit (41) for crosscorrelation.

Applicants respectfully assert that Kim in view of Vanderperren fails to teach "the result of the autocorrelating the samples of the group of preamble symbols by the autocorrelating unit is not used by the crosscorrelating unit for the crosscorrelating the samples of the further group of preamble symbols with the predefined samples" (emphasis added), as recited in amended claim 1. In particular, Applicants respectfully assert that Kim as well as Vanderperren teaches the opposite of the above-identified limitation of amended claim 1.

Kim teaches an autocorrelation unit (21), a frequency synchronization unit (22), a frequency offset compensation unit (23) and a cross-correlation unit (24). (See Fig. 2 and page 5, lines 18-29 of Kim). In particular, Kim teaches that the autocorrelation unit (21) outputs a normalized autocorrelated value and that the frequency synchronization unit (22) obtains a frequency offset value based on the normalized autocorrelated value from the autocorrelation unit (21). (See Fig. 3, steps 304-312, the description between page 6, line 18 and page 7, line 24 of Kim). Kim further teaches that the frequency offset compensation unit (23) performs frequency offset compensation on a received signal using the frequency offset value to generate a frequency offset-compensated signal. (See Fig. 3, step 316 and page 7, lines 28-30 of Kim). Kim further teaches that the cross correlation unit (24) performs cross correlation using the frequency offset-compensated signal and a reference signal. (See Fig. 3, step 318 and page 7, lines 8-11 of Kim). Thus, the cross correlation unit (24) performs cross correlation using the result of the autocorrelation unit (21). As a result, Applicants respectfully assert that Kim teaches the opposite of the above-identified limitation of amended claim 1.

Vanderperren teaches that a timing and frequency synchronization unit (5) includes an autocorrelation unit (16), a frequency offset estimation unit (17), a frequency offset compensation unit (18) and a cross-correlator unit (19). (See Fig. 3, the paragraph

between column 7, line 58 and column 8, line 3 and column 8, lines 4-16 of Vanderperren). In particular, Vanderperren teaches that an estimate frequency offset is extracted in the frequency offset unit (17) using the result of the autocorrelation unit (16). (See Fig. 3, column 8, lines 4-16 and column 9, lines 39-42 of Vanderperren). Vanderperren also teaches that the extracted estimate frequency offset is used by the frequency offset compensator (18) to correct samples for cross-correlation in the cross-correlator unit (19). (See Fig. 3 and column 12, lines 14-18 of Vanderperren). Thus, the cross-correlator unit (19) performs cross correlation using the result of the autocorrelation unit (16). Thus, Applicants respectfully assert that Vanderperren teaches the opposite of the above-identified limitation of amended claim 1.

Thus Applicants respectfully assert that Kim as well as Vanderperren teaches away from the claimed invention of amended claim 1. Because Kim as well as Vanderperren teaches away from the claimed invention of amended claim 1, Applicants respectfully assert that amended claim 1 is patentable over Kim in view of Vanderperren.

#### Dependent Claims 2-9 and 14-20

Applicants propose amending claims 7, 9 and 16 to reflect the amendments to claim 1. Support for the proposed amendments to claims 7, 9 and 16 can be found in Applicants' specification at, for example, Fig. 3, original claim 1, page 8, lines 12-33 and page 9, lines 13-31. Claims 2-9 and 14-20 depend from and incorporate all of the limitations of independent claim 1. Thus, Applicants respectfully assert that claims 2-9 and 14-20 are allowable at least based on an allowable claim 1. Additionally, claims 14-20 may be allowable for further reasons, as described below.

The Final Office Action suggests that Vanderperren teaches the individual limitations of claims 14-17 and that Kim teaches the individual limitations of claims 18-20. (See pages 6, 7, 16, 17 and 20-22 of the Final Office Action). As described above, Applicants respectfully assert that Kim as well as Vanderperren teaches away from the claimed invention of amended claim 1. Because Kim as well as Vanderperren teaches away from the claimed invention, Applicants respectfully assert that the individual limitations of claims 14-17 are not obvious over Vanderperren and that the individual

limitations of claims 18-20 are not obvious over Kim. As a result, Applicants respectfully assert that claims 14-20 are not obvious in view of the cited references.

Independent Claims 10-13

Applicants propose amending claims 10-13 in a similar fashion as claim 1. Support for the proposed amendments to claims 10-13 can be found in Applicants' specification at, for example, Fig. 3, page 8, lines 12-33 and page 9, lines 13-31. Because of the similarities between amended claims 10-13 and amended claim 1, Applicants respectfully assert that the remarks provided above with regard to amended claim 1 apply also to amended claims 10-13. Accordingly, Applicants respectfully assert that amended claims 10-13 are patentable over the recited references.

## **CONCLUSION**

Applicants respectfully request reconsideration of the claims in view of the proposed amendments and the remarks made herein. A notice of allowance is earnestly solicited.

Respectfully submitted,

Gruijters et al.

Date: August 17, 2009

By: /thomas h. ham/  
Thomas H. Ham  
Reg. No. 43,654

Wilson & Ham  
PMB: 348  
2530 Berryessa Road  
San Jose, CA 95132  
Phone: (925) 249-1300  
Fax: (925) 249-0111